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THE RELATIONSHIP BETWEEN GENERAL HEALTH STATUS AND PHYSICAL ACTIVITY IN MOTHERS OF AUTISTIC CHILDREN

A RELAÇÃO ENTRE O ESTADO GERAL DE SAÚDE E A ATIVIDADE FÍSICA EM MÃES DE CRIANÇAS AUTISTAS

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Abstract
The aim of this study is to investigate the relationship between the general health status and physical activity of mothers of children with autism and to evaluate the results according to their sociodemographic characteristics. The population of the study consists of mothers who have children with autism and live in Türkiye (İzmir Province). A total of 270 women participated voluntarily as the sample group. The study was conducted using the survey model, one of the quantitative research methods. In the study, a personal information form prepared by the researchers, the General Health Questionnaire, and the International Physical Activity Questionnaire available in the literature were used. The obtained data were analyzed using the SPSS 23 statistical package program. Since the results of the normality tests indicated that the data were not normally distributed, non-parametric analysis techniques were applied in the evaluation of the data. The Mann–Whitney U test and the Kruskal–Wallis one-way analysis of variance (K–W ANOVA) were used to determine differences between groups, and the Dunn–Bonferroni test was used to identify the sources of these differences. Correlation analysis was performed to determine the relationships between the measured parameters. In the research findings, statistically significant differences were found in the total scores of the General Health Questionnaire of mothers of children with autism according to age groups, economic status, educational status, and first aid training status ($p < 0.05$). While statistically significant differences were found in the total physical activity scores of mothers of children

Resumo
O objetivo deste estudo é investigar a relação entre o estado geral de saúde e a atividade física de mães de crianças com autismo e avaliar os resultados de acordo com suas características sociodemográficas. A população do estudo consiste em mães de crianças com autismo residentes na Turquia (Província de Izmir). Um total de 270 mulheres participaram voluntariamente como grupo amostral. O estudo foi conduzido utilizando o modelo de levantamento, um dos métodos de pesquisa quantitativa. No estudo, foram utilizados um formulário de informações pessoais elaborado pelos pesquisadores, o Questionário de Saúde Geral e o Questionário Internacional de Atividade Física, disponíveis na literatura. Os dados obtidos foram analisados utilizando o programa estatístico SPSS 23. Como os resultados dos testes de normalidade indicaram que os dados não apresentavam distribuição normal, técnicas de análise não paramétricas foram aplicadas na avaliação dos dados. O teste U de Mann-Whitney e a análise de variância de Kruskal-Wallis (ANOVA K-W) foram utilizados para determinar as diferenças entre os grupos, e o teste de Dunn-Bonferroni foi utilizado para identificar as fontes dessas diferenças. Foi realizada uma análise de correlação para determinar as relações entre os parâmetros medidos. Nos resultados da pesquisa, foram encontradas diferenças estatisticamente significativas nos escores totais do Questionário de Saúde Geral de mães de crianças com autismo, de acordo com faixas etárias, situação econômica, nível de escolaridade e treinamento em primeiros socorros ($p < 0,05$). Enquanto

with autism according to economic status and first aid training status ($p < 0.05$), no statistically significant differences were observed according to age groups and educational status ($p > 0.05$). No statistically significant relationship was found between the total physical activity scores of mothers of children with autism and the total scores of the General Health Questionnaire ($p > 0.05$). As a result, it was observed that variables such as age, educational status, economic status, and first aid training have determining effects on the general health status of mothers of children with autism. Economic status and first aid training were found to be effective on physical activity. These findings emphasize the necessity of empowering interventions aimed at supporting the physical activity and general health status of mothers of children with autism. As a result of this study, information about mothers of children with autism will be obtained, and an evaluation directed toward mothers can be carried out.

Keywords: Autism. Mother. General Health. Statusphysical Activity.

diferenças estatisticamente significativas foram encontradas nos escores totais de atividade física de mães de crianças com autismo, de acordo com a situação econômica e o treinamento em primeiros socorros ($p < 0,05$), nenhuma diferença estatisticamente significativa foi observada de acordo com as faixas etárias e o nível de escolaridade ($p > 0,05$). Não foi encontrada relação estatisticamente significativa entre os escores totais de atividade física de mães de crianças com autismo e os escores totais do Questionário de Saúde Geral ($p > 0,05$). Consequentemente, observou-se que variáveis como idade, nível de escolaridade, situação econômica e treinamento em primeiros socorros têm efeitos determinantes sobre o estado geral de saúde de mães de crianças com autismo. A situação econômica e o treinamento em primeiros socorros mostraram-se eficazes na prática de atividade física. Esses achados enfatizam a necessidade de intervenções que promovam a atividade física e o estado geral de saúde de mães de crianças com autismo. Como resultado deste estudo, serão obtidas informações sobre mães de crianças com autismo, e uma avaliação direcionada a essas mães poderá ser realizada.

Palavras-chave: *Autismo. Mãe. Estado Geral de Saúde. Atividade Física.*

1 INTRODUCTION

Health is one of the concepts that has been emphasized the most since the beginning of humanity (Dalbudak & Yiğit, 2019). The issue that humankind has valued since its existence is health. Health can be considered as a process that includes different levels ranging from the highest level of well-being to death (Aksoy & Uçar, 2014). Health has been defined in many ways from past to present. According to the definition of the World Health Organization, health is not merely the absence of disease or disability, but a state of complete physical, mental, and social well-being (WHO, 2019). The concept of health is also defined as “the condition in which the body is not ill, is in good condition, and is healthy” (Parlar Aktürk, 2024; Akça, 2008). On the other hand, healthy lifestyle behaviors (HLB) constitute a whole of behaviors that individuals believe in and practice in order to stay healthy and protect themselves from diseases (Erzincanlı et al., 2015).

Health is also closely related to the cultural structure, traditions, and social perceptions of the environment in which individuals live (Parlar Aktürk, 2024; Oral, 2018). According to Glasser, there are four fundamental components interconnected in individuals' lives: acting, thinking, feeling, and physiology. While acting and physiology constitute the physical dimension of individuals, thinking and feeling shape their psychological dimension (as cited in Corey, 2008). In this context, in order to evaluate the general health status of mothers of children with autism in Türkiye, these components should be considered together. These factors affecting health become even more important, especially for mothers of children with autism. The better the general health status of the mother, the better the condition of the child with autism will be. Conversely, if the general health status of the mother is poor, the child will be negatively affected. Children with autism are individuals who require attention, whose health needs to be carefully monitored, and who are dependent on care. They are individuals who are dependent on others. In Türkiye, having a child with autism is considered one of the most complex and distressing periods in the lives of mothers. During this period, factors such as the family's inability to accept that their child has autism, social hesitations due to cultural structure, social environment, failure to provide early intervention for the child, delays in receiving necessary education or inadequacy of educational institutions, the mother's insufficiency or lack of knowledge in raising a child with autism, low educational level of the family, and economic difficulties that cause delays or inability to receive necessary education and adequate healthcare lead the child to remain dependent on the family and may result in the child being disconnected from life and deprived of the right to life. This situation also disrupts the family structure. It has been stated that these social, cultural, and economic changes may negatively affect individuals' mental health and consequently weaken their general health status (Özdel et al., 2002). Overcoming these negativities through joint efforts of the state and society, raising awareness in society, and ensuring that families feel supported and know that they are not alone contribute to the happiness of families. Individuals with disabilities are a part of society and cannot be excluded. By providing families with necessary education, it is possible to ensure that children grow up healthy, live longer lives, and prevent obesity. At this point, one of the most important factors that improve individuals' health status is physical activity. Studies have shown that there is a linear relationship between physical activity and mental health and that engaging in

physical activity for 2.5–7.5 hours per week positively affects mental health. It has been determined that the likelihood of depression is twice as high in physically inactive individuals compared to those with high levels of physical activity (Kim et al., 2012; De Mello et al., 2013). Scientific studies have demonstrated that regular physical activity increases quality of life and positive emotions (Herbert et al., 2020), general health and well-being (Mahalakshmi et al., 2020), and physical and mental health levels (Slater et al., 2020), while reducing depression and perceived stress levels (Herbert et al., 2020) (Ateş, 2025).

These findings indicate that for mothers of children with autism, physical activity contributes not only to physical health but also to mental health in order to maintain a healthy life. This, in turn, enables families to live a regular and happy life together. In order to improve the quality of life of mothers of children with autism, physical activity should be encouraged and multidimensional health-related approaches should be adopted. In this context, mothers of children with autism should be equipped with the necessary knowledge and practices regarding physical activity and healthy living. Through the education they receive, mothers gain an important advantage by better understanding the effects of physical activity on health, both in improving their own health and in transferring this knowledge to their children with autism. The information obtained supports individuals' physical and mental health and contributes to improving their health status to a better level through regular participation in sports. This learning process provides benefits for both the mother and the child with autism. Therefore, the physical development processes of both mothers and children with autism emerge as a factor that positively affects their general health status. When the relevant literature is examined, the relationship between general health status and physical activity (Çolak & Erol, 2021), personality traits (Biçer, 2023), exercise behaviors (Günal et al., 2018), quality of life (Üner & Sevencan, 2013), emotional changes (Başol et al., 2022), and social support (Kıraç, 2024) has been investigated.

In this context, the aims of the study are as follows: (a) to investigate the relationship between the general health status and physical activity of mothers of children with autism, and (b) to examine the relationship between general health status and physical activity in terms of age, economic status, educational status, and first aid training status. For this purpose, the following hypotheses were tested.

H1: The general health status of mothers of children with autism insignificantly predicts their physical activity.

H2: The physical activity of mothers of children with autism insignificantly predicts their general health status.

2 METHOD

2.1 Research model

In this study, the relational survey model, one of the quantitative research methods, was used. The relational survey model is conducted in order to determine whether existing variables change together and, if there is a change, to identify the direction of this change (Büyüköztürk et al., 2018).

2.2 Population and sample

The population of the study consists of mothers who have children with autism and live in İzmir Province, Türkiye. A total of 270 mothers of children with autism participated in the study voluntarily, selected using the simple random sampling method. Questionnaires were administered to the participants. As the sampling determination method, convenience sampling, one of the non-probability sampling methods, was preferred. Convenience sampling refers to a sample that is readily available, easily accessible, and easy to reach (Berg & Howard, 2015). In short, within the population, every participant who is accessible and willing is included in the data collection process, and this continues until the planned sample size within the population is reached (Altunışık et al., 2012).

2.3 Data collection tools

In the study, a personal information form developed by the researchers, the General Health Questionnaire included in the literature, and the Physical Activity Questionnaire were used as data collection tools.

2.4 Personal information form

The personal information form consists of four questions aimed at obtaining information about the age, economic status, educational status, and first aid training status of the mothers participating in the study.

2.5 General Health Questionnaire-28 (GHQ-28)

In this study, the General Health Questionnaire-28 (GHQ-28), developed by Goldberg (1972), was used. The Turkish adaptation of the scale was conducted by Kılıç (1996). The scale was developed to identify individuals' mental health problems. The minimum score that can be obtained from the scale is 0 and the maximum score is 28, and higher scores indicate an increased likelihood of mental health problems. The scale aims to measure the presence of mental health problems in individuals and, as a result, to direct them to apply to a non-psychiatric clinic. The questionnaire consists of four sections, each containing seven items. These sections are somatic symptoms, anxiety and sleep disorders, social dysfunction, and severe depression, respectively. Studies have shown that each section is related to one another, indicating that the sections are not independent of each other (Kılıç, 1996). The scale consists of 28 items and includes questions regarding conditions that individuals have recently complained about. The items of the scale are structured on a four-point scale ranging from "less than usual" to "much more than usual." The four-point response scale was used as a two-point scale based on the "GHQ-type scoring" method developed by Goldberg, in which the first two items are scored as negative and the last two items as positive. Accordingly, items a and b were scored as "0 (zero)" and items c and d were scored as "1 (one)." The Cronbach's alpha internal consistency coefficient of the scale was determined as 0.94 (Kılıç, 1996).

2.6 International Physical Activity Questionnaire (IPAQ)

In order to determine individuals' physical activity levels, the International Physical Activity Questionnaire, developed by Craig et al. (2003) and whose Turkish validity and reliability were conducted by Öztürk (2005), was used. In the International

Physical Activity Questionnaire, the criterion that physical activities are performed for at least 10 minutes at a time was taken into consideration. Through the questionnaire, individuals' durations of vigorous physical activity, moderate-intensity physical activity, and walking within the last 7 days were questioned. The durations of vigorous activity, moderate-intensity activity, and walking were converted into MET values corresponding to basal metabolic rate using the calculations below, and the total physical activity score (MET-min/week) was calculated (Craig et al., 2003).

1. Walking score (MET-min/week) = 3.3 × walking duration × walking days
2. Moderate-intensity activity score (MET-min/week) = 4.0 × moderate-intensity activity duration × moderate-intensity activity days
3. Vigorous activity score (MET-min/week) = 8.0 × vigorous activity duration × vigorous activity days
4. Total Physical Activity Score (MET-min/week) = Walking + Moderate-intensity activity + Vigorous activity scores

2.7 Physical activity levels

1. Low: Below 600 MET-min/week
2. Moderate: Between 600–3000 MET-min/week
3. High: Above 3000 MET-min/week

2.8 Data collection

The questionnaires were prepared by the researchers, and the research data were collected from participants between December and March 2024.

2.9 Data analysis

In descriptive statistics, percentage, frequency, arithmetic mean, skewness, and kurtosis values were calculated. In order to examine whether the data were normally distributed, skewness and kurtosis values were analyzed. Since the results of the normality tests indicated that the data were not normally distributed, non-parametric

analysis techniques were applied. As the data did not meet the assumption of normal distribution, group differences were tested using the Mann–Whitney U test and the Kruskal–Wallis one-way analysis of variance (K–W ANOVA), and the Dunn–Bonferroni test was used to determine which groups caused the differences. The analyses were conducted at a 95% confidence level. The obtained data were analyzed using the SPSS 23 statistical package program.

2.10 Findings

Table 1

Demographic Characteristics of the Participants

Variable	Category	Frequency (n)	Percentage (%)
Age	30 years or younger	24	8.9
	31–40 years	144	53.3
	41 years or older	102	37.8
	Total	270	100.0
Economic Status	Low level	48	17.8
	Medium level	216	80.0
	High level	6	2.2
	Total	270	100.0
Educational Status	Primary school	18	6.7
	Secondary school	30	11.1
	High school	36	13.3
	University or postgraduate	186	68.9
	Total	270	100.0
First Aid Training Status	Yes, received	180	66.7
	No, not received	90	33.3
	Total	270	100.0

Among the 270 participants included in the study,

- 24 individuals (8.9%) were aged 30 years or younger, 144 individuals (53.3%) were between the ages of 31 and 40, and 102 individuals (37.8%) were aged 41 years or older.
- Regarding economic status, 48 participants (17.8%) reported having a low economic status, 216 participants (80.0%) reported a moderate economic status, and 6 participants (2.2%) reported a high economic status.

- In terms of educational status, 18 participants (6.7%) had primary school education, 30 participants (11.1%) had secondary school education, 36 participants (13.3%) had high school education, and 186 participants (68.9%) had university or postgraduate education.
- A total of 180 participants (66.7%) stated that they had received first aid training, while 90 participants (33.3%) stated that they had not received first aid training.

Table 2

Descriptive Statistics of the Total Scores of the General Health Questionnaire

Scale	Minimum	Maximum	Mean	Standard Deviation	Cronbach's Alpha
GSA-28	0.00	23.00	5.11	5.50	0.901

According to the table, the minimum score obtained from the General Health Questionnaire was 0, and the maximum score was 23. The mean total score was 5.11, and the standard deviation was 5.50. The Cronbach's Alpha statistic calculated from the responses of the 270 participants was $\alpha = 0.901$, indicating that the scale is highly reliable.

Table 3

Normality Test Results for the Total Scores of the General Health Questionnaire

Scale	Kolmogorov–Smirnov Statistic	Kolmogorov–Smirnov p	Shapiro–Wilk Statistic	Shapiro–Wilk p
GSA-28	0.183	<0.001	0.840	<0.001

Kolmogorov–Smirnov and Shapiro–Wilk normality tests were conducted to examine the normality of the total scores of the General Health Questionnaire. For both tests, the p-values for the GHQ-28 total scores were less than 0.05. Therefore, it was concluded that the GHQ-28 total scores did not meet the assumption of normal distribution and did not originate from a normally distributed population.

Table 4

Statistics of the Total Scores of the General Health Questionnaire According to Demographic Characteristics

Variable	Category	Statistic	GSA-28
Age	30 years or younger	Mean	4.25
		Standard Deviation	5.79
	31–40 years	Mean	4.47
		Standard Deviation	5.05
	41 years or older	Mean	5.70
		Standard Deviation	5.72
		p-value	0.018*
Economic status	Low level	Mean	10.62
		Standard Deviation	5.29
	Medium level	Mean	3.94
		Standard Deviation	4.84
	High level	Mean	3.00
		Standard Deviation	2.12
		p-value	<0.001*
Educational status	Primary school	Mean	7.66
		Standard Deviation	5.40
	Secondary school	Mean	7.00
		Standard Deviation	4.77
	High school	Mean	7.83
		Standard Deviation	8.49
	University or postgraduate	Mean	3.83
		Standard Deviation	4.19
		p-value	<0.001*
First aid training status	Yes, received	Mean	4.16
		Standard Deviation	5.00
	No, not received	Mean	7.00
		Standard Deviation	5.98
		p-value	<0.001*

Table 4 presents summary statistics of the total scores of the General Health Questionnaire according to demographic characteristics. Since the total scores of the scale did not meet the assumption of normal distribution, group differences were tested using the Mann–Whitney U test and the Kruskal–Wallis one-way analysis of variance (K–W ANOVA), and the Dunn–Bonferroni test was used to identify the sources of the differences. The analyses were conducted at a 95% confidence level.

- Statistically significant differences were found in the total scores of the General Health Questionnaire according to age groups, economic status, educational status, and first aid training status.
- As age group increased, the likelihood of mental health problems also increased.

- Individuals with low economic status had a higher likelihood of mental health problems compared to individuals with moderate and high economic status.
- Individuals with university or postgraduate education had a lower likelihood of mental health problems compared to other individuals.
- Individuals who had not received first aid training had a higher likelihood of mental health problems.

Table 5

Descriptive Statistics of the Physical Activity Questionnaire (MET-min/week)

Scale	Minimum	Maximum	Mean	Standard Deviation
Walking score	0.00	8316.00	1277.45	1823.47
Moderate-intensity activity score	0.00	4320.00	358.34	702.08
Vigorous-intensity activity score	0.00	4320.00	248.65	682.73
Total physical activity score	0.00	12636.00	1884.45	2395.74

According to the table, the highest walking score within the sample was 8316, and the mean walking score was 1277.45. The highest moderate-intensity activity score was 4320, and the mean moderate-intensity activity score was 358.34. The highest vigorous activity score was 4320, and the mean vigorous activity score was 248.65. The total physical activity score ranged between 0.00 and 12636.00. The mean total physical activity score was 1884.45, and the standard deviation was 2395.74.

Table 6

Normality Test Results for Physical Activity Scores

Scale	Kolmogorov–Smirnov Statistic	Kolmogorov–Smirnov p-value	Shapiro–Wilk Statistic	Shapiro–Wilk p-value
Total Physical Activity Score	0.240	<0.001	0.661	<0.001

Kolmogorov–Smirnov and Shapiro–Wilk normality tests were conducted to examine the normality of total physical activity scores. For both tests, the p-values for the

total physical activity scores were less than 0.05. Therefore, it was concluded that the total physical activity scores did not meet the assumption of normal distribution and did not originate from a normally distributed population.

Table 7

Statistics of Physical Activity Scores According to Demographic Characteristics

Variable	Group	Mean	Standard Deviation	p-value
Age	30 years or younger	1203.02	577.77	0.965
	31–40 years	2099.10	2660.07	
	41 years or older	1741.73	2235.05	
Economic status	Low level	1161.86	782.41	0.001*
	Medium level	1961.64	2583.28	
	High level	4886.00	542.13	
Educational status	Primary school	1282.35	893.95	0.289
	Secondary school	3342.96	4068.99	
	High school	1330.44	564.05	
	University or postgraduate	1814.69	2274.16	
First aid training status	Yes, received	2356.04	2767.33	<0.001*
	No, not received	941.26	772.04	

Table 7 presents summary statistics of physical activity scores according to demographic characteristics. Since the total physical activity scores did not meet the assumption of normal distribution, group differences were tested using the Mann–Whitney U test and the Kruskal–Wallis one-way analysis of variance (K–W ANOVA), and the Dunn–Bonferroni test was used to identify the sources of the differences. The analyses were conducted at a 95% confidence level.

- No statistically significant differences were found in total physical activity scores according to age groups.
- No statistically significant differences were found in total physical activity scores according to educational status.
- Statistically significant differences were found in total physical activity scores according to economic status. Accordingly, individuals with high economic status were found to have higher total physical activity levels than other individuals.
- Statistically significant differences were also found in total physical activity scores according to first aid training status. Accordingly, individuals who had

received first aid training were found to have higher total physical activity scores compared to those who had not received first aid training.

Table 8

Relationship Between General Health Status and Physical Activity of the Participants

Variables	1. Total Physical Activity	2. GSA-28
1. Total Physical Activity**	1.000	0.109 (0.075)
2. GSA-28**	0.109 (0.075)	1.000

Questionnaire did not originate from a normally distributed population, the relationship between the total scores of the scale and subscales was examined using the Spearman correlation coefficient. The correlation coefficient takes values between -1 and +1. A positive value indicates a positive relationship between two variables, while a negative value indicates an inverse relationship. As the correlation value approaches -1 or +1, the strength of the relationship increases. A correlation coefficient of 0 indicates no relationship between the two variables, and as it approaches 0, the strength of the relationship decreases. The Spearman correlation coefficient between total physical activity scores and total GHQ-28 scores was 0.109. The p-value for the significance of the relationship was 0.075. Since the p-value was greater than 0.05, no statistically significant relationship was found between total physical activity scores and total GHQ-28 scores. These two variables do not affect each other.

3 DISCUSSION

In this study, the relationship between the general health status and physical activity of mothers with children diagnosed with autism was investigated, and the relationships between age, economic status, educational status, and first aid training status in relation to general health status and physical activity were examined.

A statistically significant difference was identified in the total scores of the General Health Questionnaire according to age groups. As the age group increases, the likelihood of mental health problems also increases. In several studies in the literature, it has similarly been reported that GHQ scores are affected by increasing age and that

mental disorders occur more frequently with advancing age (Elkin & Barut, 2017; Özkan et al., 2013; Bingöl et al., 2012; Kılıç et al., 1997). Age appears to have an effect on general health. As individuals grow older, they may feel pushed toward loneliness, which leads to general health problems. Feeling unproductive with increasing age may also contribute to health problems. These findings support the results of the present study.

A statistically significant difference was found in the total scores of the General Health Questionnaire according to individuals' economic status. Individuals with low economic status have a higher likelihood of experiencing mental health problems compared to those with moderate and high economic status. Kıraç (2019) reported that as income level increases, the tendency toward a healthy lifestyle also increases. Socioeconomic status affects human health throughout life (Kıraç, 2019; Lynch et al., 1997; Ross & Wu, 1996). There is substantial evidence in the literature demonstrating a positive relationship between income and health level (Kıraç, 2019; Lynch et al., 2004; Wagstaff & Doorslaer, 2000). Improvements in health indicators occur as income level increases (Kıraç, 2019; Wilkinson, 1997; Pritchett & Summers, 1996; Deaton, 2006; Tüylüoğlu & Tekin, 2009). In summary, as income level increases, individuals' general health conditions are positively affected. Individuals with poor economic conditions tend to experience psychological distress. Countries with lower economic development levels have lower living standards and higher mortality rates. The findings of this study are supported by the literature.

A statistically significant difference was identified in the total scores of the General Health Questionnaire according to educational status. Individuals with university or postgraduate education have a lower likelihood of mental health problems compared to others. In a study conducted among medical faculty students, Bhuiyan (2017) found significantly higher results in the group whose parents had a high school education or above compared to those whose parents had middle school education or below. Ünalan et al. (2007) demonstrated that as maternal and paternal education levels increased, mean scores in subscales and total scale scores increased significantly. As educational level increases, the level of health perception changes. The results of these studies support the findings of the present research. Accordingly, it can be understood that the better the educational status of the participants in our study, the higher the likelihood that their mental health status is also better. Education is particularly important for individuals with

autism compared to those without autism. Individuals with higher education levels may be more aware of their psychological difficulties and may cope more effectively by adopting more solution-oriented approaches compared to others. The education they receive, along with the social environment and experiences shaped around it, enables them to cope better with such situations. In this way, it can be stated that they provide more effective support to their children with disabilities. The educational level of parents with a disabled child plays a very important role in raising their children. Findings supporting this study were obtained.

A statistically significant difference was identified in the total scores of the General Health Questionnaire according to individuals' first aid training status. Individuals who had not received first aid training had a higher likelihood of experiencing mental health problems. In our study, it can be stated that individuals who received first aid training were better able to identify ways of coping with psychological difficulties. It can also be suggested that individuals with good general health status have knowledge about first aid training. Since individuals with good general health are likely to contribute to others in terms of health, it may be stated that they tend to receive first aid training. No findings supporting our study were encountered in the literature.

Total physical activity scores of individuals did not show a statistically significant difference according to educational status. Similarly, in the study conducted by Ecertaş (2020), no significant difference was found between participants' educational level and physical activity levels. Likewise, in a study conducted by Korkmaz and Demirkıran (2017) on healthcare personnel, no statistically significant difference was identified between physical activity level and educational level. Regardless of educational level, individuals are aware of the importance of physical activity for health. These studies support the findings of the present study.

A statistically significant difference was found in individuals' total physical activity scores according to economic status. Accordingly, individuals with higher economic status were found to have higher total physical activity levels compared to others. In a study conducted by Yıldırım et al. (2019), which examined the relationship between physical activity and quality of life among healthcare workers, it was reported that individuals with low and moderate physical activity levels differed significantly according to income status, with those in lower and middle income groups differing from

those in higher income groups. Furthermore, individuals with high physical activity levels showed significant differences in favor of those with higher income levels compared to lower and middle income groups. In the study conducted by Kızar et al. (2016), which examined university students' physical activity levels, significant differences were found in total physical activity and walking activity levels according to family income status, whereas no significant differences were detected in vigorous and moderate physical activity levels. These studies support the findings of the present study. As the income level of mothers with children with autism increases, participation in physical activity also increases. Therefore, it can be stated that physical activity is directly proportional to income level. As individuals' economic status increases, they tend to participate in physical activity during their leisure time. It can also be suggested that as individuals' economic level increases, they turn toward different areas to maintain their health and engage in physical activity to prevent obesity in children with autism.

Individuals' total physical activity scores did not show a statistically significant difference according to age groups. Since this study was conducted only with mothers of children with autism, the absence of differences between age groups may be explained by the importance of physical activity for children with disabilities, resulting in no significant difference. In another study, it was reported that meal-skipping behaviors increased with age and that physical activity levels decreased as age increased (Keskin et al., 2017; Aksoydan & Çakır, 2011). In the study conducted by Kudaş et al. (2005), it was observed that physical activity levels have recently decreased among adolescents and children (Keskin et al., 2017). It has been suggested that physical activity levels vary across ages and that factors affecting physical activity levels include sedentary behaviors, school, family, society, active transportation, organized sports programs, participation in active play, physical structure, environment, and government policies (Keskin et al., 2017; Tarakcı et al., 2015). The lack of differences in physical activity levels among adolescents and children with increasing age may be explained by the use of leisure time in different activities and changing priorities. These studies support the findings of the present study.

A statistically significant difference was identified in individuals' total physical activity scores according to their first aid training status. Accordingly, individuals who received first aid training were found to have higher total physical activity scores compared to those who did not receive such training. Physical activity is of critical

importance for individuals with autism in terms of both motor development and social skills. However, the anxiety experienced by mothers during this process may limit children's participation in physical activity. In particular, feeling unprepared for sudden situations may increase parents' protective instincts and restrict the child's freedom of movement. At this point, first aid training for mothers emerges as an important empowering factor. Through training, the ability to respond correctly and quickly during crisis situations improves, which reduces the mother's level of anxiety and encourages safer participation of the child in physical activity. Current findings indicate that the children of parents who received first aid training have higher physical activity scores. However, studies in the literature specifically examining this effect among children with autism and their mothers are quite limited. Since no studies directly addressing this topic were encountered during the literature review, no sources supporting our study were identified.

No statistically significant relationship was found between total physical activity scores and the total scores of the General Health Scale. These two variables do not appear to influence each other. It can be stated that both physical activity and general health are important for individuals. The absence of a significant difference in this study may be explained by mothers of children with autism having limited knowledge about physical activity or general health. It may also be suggested that cultural or economic conditions experienced by these individuals are not favorable. In the study conducted by Parlar (2024), no significant differences were found between general health status and physical activity assessment and its subdimensions. This finding supports the results of the present study.

4 CONCLUSION

In the study titled *"The Relationship Between General Health Status and Physical Activity Among Mothers of Children with Autism"*, the following results were obtained:

A statistically significant relationship was found between the general health status of mothers of children with autism and age.

A statistically significant relationship was found between the general health status of mothers of children with autism and economic status.

A statistically significant relationship was found between the general health status of mothers of children with autism and educational status.

No statistically significant difference was found between the general health status of mothers of children with autism and first aid knowledge.

No statistically significant difference was found between the physical activity levels of mothers of children with autism and age.

A statistically significant relationship was found between the physical activity levels of mothers of children with autism and economic status.

No statistically significant difference was found between the physical activity levels of mothers of children with autism and educational status.

No statistically significant difference was found between the physical activity levels of mothers of children with autism and first aid knowledge.

5 RECOMMENDATIONS

Since only mothers of children with autism were included in this study, a wide range of age groups could not be addressed. In future studies that include broader age ranges, the relationship between age and general health status as well as the relationship between age and physical activity can be examined. Additionally, since the target population of this study consisted only of mothers of children with autism, gender-related differences could not be evaluated. Similar studies can be conducted with fathers of children with autism, and the results obtained regarding gender differences can be assessed.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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